

AMENDMENTS TO THE SPECIFICATION

Please replace the paragraph beginning at p. 4, line 25 and ending at p. 5, line 22 with the following amended paragraph.

In its most general form, the safety switch of the invention comprises a casing 1 inside which it is housed an activation key 2, a pair of contact-holding elements, identified as first 10 and second 11 elements respectively, and a triad of electric terminals 6, 7, 9, identified as central 6, ~~first-8~~ first 7 and second 9 terminals respectively, emerging from the floor of said casing 1 on both sides thereof; these contact-holding elements 10, 11 oscillate around the same oscillation axis O-O between two positions that will be identified as a passive position and an active position, respectively. Each contact-holding element 10, 11 is disposed in a tilting manner around an end of a corresponding laminar support, identified as ~~first-6 and second-8~~ first 6a and second 8a laminar supports respectively, and each of said positions is fixed by a corresponding position of said activation key 2 pivoting about a rotation axis R-R parallel to the oscillation axis O-O. The central terminal 6 of the triad 6, 7, 9 is in permanent electric contact with one of the contact-holding elements 10, 11, whereas the two other terminals, first 7 and second 9 terminals respectively, are each alternately separated from or in electric contact with the corresponding first and second contact-holding elements 10, 11 depending on the position of key 2; the contact-holding element 10, 11 closed on the corresponding terminal 7, 9 in a passive position is separated from the latter in an active position and vice versa. The contact-holding elements 10, 11 are electrically connected to each other through two

conductive elements ~~17a, 18a~~ 17, 18 each of which is associated with its corresponding contact-holding element and they are capable of being separated from each other by relative displacement of mating surfaces 17a, 18a in mutual contact during normal use.

Please replace the five (5) paragraphs beginning at p. 6, line 15 and ending at p. 7, line 14, with the following five (5) amended paragraphs.

A triad of electric terminals 6, 7, 9 is inserted in the floor of casing 1 for connection with the circuits to be controlled; preferably said electric terminals 6, 7, 9 are shaped as triad~~comprises~~ three plate-like lugs 6, 7, 9 of electrically conductive material projecting from said floor and facing said key 2. Also projecting from the floor is a further plate-like lug 8 preferably of insulating material, and also facing said key.

The first and third plate-like lugs 6 and 7 are inserted in the first cavity of the casing, the second and fourth plate-like lugs 8 and 9 are inserted in the second cavity disposed in side by side relationship with the first cavity. ~~[[;]]~~ Preferably ~~preferably~~, the first plate-like lug 6 and second plate-like lug 8 are in alignment with each other in a transverse direction and lie in the plane containing the rotation axis R-R.

Preferably, at least the first, third and fourth plate-like lugs 6, 7 and 9 ~~and 8~~ project from the floor of casing 1 also outwardly.

The first and the second plate-like lugs 6 and 8 ~~constitute~~ define the laminar support 6a, 8a for a pair of contact-holding elements 10, 11; more preferably, each end of the first and the second plate-like lugs 6 and 8

projecting inwardly of the container acts as a fulcrum for a corresponding contact-holding element 10, 11 oscillating around said fulcrum along a transverse oscillation axis O-O parallel to axis R-R.

Preferably each contact-holding element 10, 11 comprises a pilot member 10c, 11c having a U-shaped conformation, the base of which rests on the corresponding fulcrum and at least one of the sides of which is provided with a flange 10a, 11a on the free end thereof. Preferably, the said flange projects projecting in cantilevered fashion from said end and extends extending lengthwise, away from the oscillation axis. Fastened to this flange is an electric contact point 10b, 11b preferably consisting of a droplet of appropriate conductive material welded to the surface of said flange.

Please replace the paragraph beginning at p. 7, line 18 and ending at p. 7, line 35, with the following amended paragraph.

The third and fourth plate-like lugs 7 and 9 project inwardly of the casing at flanges 10a and 11a, respectively: preferably, the free end of each third and fourth plate-like lug is provided with a flange 7a, 9a projecting in cantilevered fashion from said end and extended in a longitudinal direction towards the oscillation axis O-O. Fastened to each flange 7a, 9a is an electric contact point 7b, 9b preferably consisting of a droplet ~~7b, 9b~~ of appropriate conductive material welded to the flange surface. In more detail, contact point 7b is fastened to the surface of flange 7a facing key 2, contact point 9b is fastened to the surface of flange 9a facing the floor. The radial extension (height) of said third and fourth plate-like lugs 7 and 9 is different; the third

plate-like lug 7 has flange 7a disposed between the flange 10a and the casing floor, the fourth plate-like lug 9 has flange 9a disposed between flange 11a and key 2. In this way the contact points 10b and 7b, 11b and 9b always face each other in mutual correspondence.

Please replace the three (3) paragraphs beginning at p. 8, line 36 and ending at p. 9, line 28, with the following three (3) amended paragraphs.

In a preferred embodiment of the invention, the conductive elements 17, 18 are L-shaped plates and the base of each pilot member 10c, 11c is integral with an L-shaped plate 17, 18, respectively, radially extending outwardly (Fig. 4).~~[[:]]~~ More ~~more~~ preferably, the long leg ~~47, 48~~ 17b, 18b of the "L" is fastened to the base of the pilot member 10c, 11c along the edge facing the adjacent pilot member, and the short leg ~~47a, 48a~~ of the "L", hereinafter referred to as "slide" 17c, 18c, projects in cantilevered fashion in a transverse direction from the free end of the long leg and faces the adjacent pilot member 10c, 11c as well. The two slides 17c, 18c carry the mating surfaces 17a, 18a and are preferably formed with a curvilinear or dihedral surface the concavity of which is turned towards the oscillation axis O-O, preferably with the dihedron edge parallel to said oscillation axis. The shapes of the two surfaces match one another and are in mutual forced contact, the slide ~~47a~~ 17c of the pilot member 10c being radially superposed on the slide ~~48a~~ 18c of the pilot member 11c.

The pilot member 11c is supported over the whole width thereof, in a transverse direction, by the second plate-like lug 8, whereas the pilot

member 10c is supported in the same transverse direction over only half its width from the first plate-like lug 6 which on its center line is provided with a step facing the pilot member 11c.

In conclusion, the pilot member 10c is respectively supported, at two transversely opposite positions, by the portion of the first plate-like lug 6 constituting the fulcrum of the pilot member and by the slide ~~47a~~ 17c resting on the adjacent slide ~~48a~~ 18c.

Please replace the twelve (12) paragraphs beginning at p. 9, line 33 and ending at p. 12, line 30, with the following twelve (12) amended paragraphs.

The first, third and fourth plate-like lugs 6, 7 and 9, as previously said, preferably project to the outside of casing 1 emerging from the floor of the casing itself: these projecting portions, in use, are connected to corresponding lead-in wires of the conductors of the electric installation to be controlled; more specifically, the first plate-like lug 6 ~~belonging to~~ defining the central terminal is connected to the supply voltage and is always energized, the plate-like lug 7 ~~belonging to~~ defining the first terminal is connected to a braking device of the apparatus, the plate-like lug 9 ~~belonging to~~ defining the second terminal is connected to the motor device of the apparatus. It should be pointed out that the second laminar support 8a ~~laminar support 8~~ of the second pilot member 11 is not directly connected with the electric circuit controlled by the switch; the material of the plate-like lug 8 can therefore be any suitable material, not necessarily an electrically conductive material. Still

to be pointed out is the fact that the electric connection between the two pilot members 10c and 11c ~~10 and 11~~ is made by the conductive elements 17 and 18.

Fig. 1 shows the switch of the invention in a first position herein defined as passive position. In this position the flanges 10a, 11a of the pilot members 10c, 11c are inclined to the floor of casing 1: the contact between the pilot member 10c and the third plate-like lug 7 is closed, the contact between the pilot member 11c and the fourth plate-like lug 9 is open.

A pressure exercised on the radially external surface of key 2, alternately in the two end positions, rotates the key around the transverse rotation axis R-R substantially passing by the two side arms 3, 4 of key 2, close to the end of the corresponding springs ~~42, 42-12, 13~~.

Said rotation of key 2 changes the inclination of arms 3, 4 and therefore reverses bending of springs 12, 13, fitted between the arm and the pilot member 10c, 11c, towards the longitudinally opposite direction: consequently, each spring 12, 13 forces the corresponding pilot member 10c, 11c to longitudinally swing on its fulcrum, causing inclination of flange 10a, 11a towards key 2. By effect of this change of inclination the switch takes a position identified as active position, opening the contact between the pilot member 10c and the third plate-like lug 7, while closing that between the pilot member 11c and the fourth plate-like lug 9.

Operation of the switch takes place as follows. It is assumed that the switch must control an electric circuit, not shown, containing a motor device and a braking device, to be operated separately, through the third plate-like lug 7 powering the braking circuit and the fourth plate-like lug 9 powering the

motor circuit, and it is also assumed that the switch is in a passive position, i.e. is powering the braking circuit. The first plate-like lug 6 is connected with the ~~mains~~ main voltage energizing the pilot member 10c as well. The braking system is powered by the third plate-like lug 7 in electric connection with the pilot member 10c through the pair of contact points 10b and 7b. The pilot member 11c is energized as well, through the pair of slides 17c and 18c ~~17a and 18a~~, but the flange 11a and fourth plate-like lug 9 are separated and therefore the motor circuit is not powered.

The motor circuit is now required to be powered: by exerting pressure on the end of key 2 which is raised with respect to casing 1, rotation of the key is caused and, with this rotation, oscillation of each pilot member ~~40c,~~ 10c, 11c around the respective fulcrum occurs.

This oscillation reverses the inclination of the pilot members 10c, 11c relative to the oscillation axis O-O₁. ~~The~~ The the contact points 10b and 7b are separated so that the braking circuit is no longer energized and the contact points 11b and 9b are brought into mutual contact and the motor circuit is powered.

It is now assumed that for any accidental reason, due for example to sparking caused by the repeated opening and closing movements, contact points ~~contacts~~ 11b and 9b remain welded to one another thereby blocking the pilot member 11c in the condition at which powering of the motor circuit occurs.

In this case, pressure exerted on the rear portion of key 2 (Fig. 3) will succeed in causing oscillation of the pilot member 10c alone, bringing contact points ~~contacts~~ 10b and 7b to the position of mutual contact that will result in

power supply being restored to the braking circuit, at the end of the oscillation.

Following this oscillation of the pilot member 10c the corresponding ~~slide 17a~~ slide 17c smoothly moves along the radially external surface of the underlying ~~slide 18a~~ slide 18c until the mutual contact is lost. In this way, however, ~~slide 17a~~ slide 17c loses its support and consequently the pilot member 10c only supported close to the outer centre line of its base and submitted to the pressure of spring 12, falls (Figs. 4 and 5) towards the dividing baffle 5 while the ~~slide 18a~~ slide 18c is positioned within the recess of said baffle.

Contact loss between the two slides ~~17a, 18a~~ 17c, 18c de-energizes the ~~pilot-member 4~~ pilot members 10c, 11c and therefore the motor circuit is no longer powered.

It will be understood that now the safety switch is blocked: in fact, a pressure on the front portion of key 2 does not succeed in producing the reverse oscillation of the pilot member 10c because the recess of the dividing baffle 5 blocks ~~slide 17a~~ slide 17c inside it, inhibiting any further movement.

Insertion of ~~slide 17a~~ slide 17c in the recess of baffle 5 prevents said slide from accidentally coming into contact with ~~slide 18a~~ slide 18c, due to movements or vibrations of the apparatus on which the switch is mounted, for example.

Please replace the five (5) paragraphs beginning at p. 12, line 34 and ending at p. 13, line 34, with the following five (5) amended paragraphs.

However, the low cost of the switch makes repairing the switch repair of same economically unsuitable.

Taking now into account the second plate-like lug 8, it has been already seen that it can be made of a non conductive material, too. Preferably, in accordance with the invention, the second plate-like lug 8 is made of a plastic material having a low melting point.

An embodiment of the present This invention enables accomplishment of another safety device associated with the just described switch. Operation of the motor in a continuous manner above all with the maximum current absorption, may cause overheating of the motor and/or the elements associated therewith with possible occurrence of drawbacks and damages. An equipment failure too (short-circuit) gives rise to a current absorption of much higher intensity than the maximum intensity allowed thereby jeopardizing safety of the associated devices.

The invention remedies these problems by making the second plate-like lug 8 of fusible material. In fact, overheating due to a failure or to an improper use also concerns the pilot members 10c, 11c the temperature of which is increased during operation. This temperature increase does not affect the first plate-like lug 6, which is made of metal as well, but can lead the second plate-like lug 8 to fusion. As a consequence of this fusion, the pilot member 11c falls on the floor of casing 1 losing its contact with the ~~flange—9~~ flange 9a and therefore losing its possibility of oscillating. Subsequent pressures of key 2 can only cause smooth moving of the pilot member 11c along the floor of the second cavity but cannot restore the lost electric connection.

A person skilled in the art will be able to conveniently select the sizes, in particular thickness, of the ~~pilot member 11~~ pilot member 11c and of the second plate-like lug 8, together with the type of the material to be used, in order to regulate the time and temperature values causing fusion of the second plate-like lug 8.